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JEREMY FEIGELSON (NY Bar No. 2518421) (appearance *pro hac vice*)
RUSHMI BHASKARAN (NY Bar No. 4794111) (admitted *pro hac vice*)
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Attorneys for Defendant/Counterclaimant
FOUNDATION MEDICINE, INC.

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

GUARDANT HEALTH, INC.,

Plaintiff/Counterdefendant,

v.

FOUNDATION MEDICINE, INC.,

Defendant/Counterclaimant.

CASE NO. C 17-03590-JSC

SURREPLY DECLARATION OF AMANDA M. BARTLETT IN SUPPORT OF FOUNDATION MEDICINE, INC.'S SURREPLY MEMORANDUM

Date: March 14, 2018
Time: 9:00 a.m.
Judge: Hon. Jacqueline Scott Corley
Courtroom: Courtroom F, 15th Floor

[PUBLIC REDACTED VERSION]

I, AMANDA M. BARTLETT, hereby declare as follows:

1. I have been admitted *pro hac vice* to appear before this Court. I am an associate at Debevoise & Plimpton LLP, counsel to the Defendant/Counterclaimant in this action. I submit this declaration in support of Defendant/Counterclaimant Foundation Medicine, Inc.'s Surreply Memorandum. The exhibit numbers in this Declaration continue from the point at which my earlier filed Declaration ended.

2. Attached hereto as **Exhibit 43** are additional true and correct excerpts from the transcript of the deposition of Dr. Helmy Eltoukhy in the above-captioned matter.

3. Attached hereto as **Exhibit 44** are additional true and correct excerpts from the transcript of the deposition of Mark Jacobstein in the above-captioned matter.

4. Attached hereto as **Exhibit 45** is a true and correct copy of a document produced by Foundation Medicine, Inc. in this matter bearing bates numbers FMI00001249-50.

5. Attached hereto as **Exhibit 46** are additional true and correct excerpts from the transcript of the deposition of Dr. Victoria Wang in the above-captioned matter.

6. Attached hereto as **Exhibit 47** is a true and correct excerpt of a spreadsheet produced by Guardant Health, Inc. in this matter bearing bates number GHI00001139, accompanied by a chart prepared by FMI's counsel based on the contents of that excerpt.

7. Attached hereto as **Exhibit 48** are true and correct excerpts from the transcript of the deposition of Dr. Philip Stephens in the above-captioned matter.

8. Attached hereto as **Exhibit 49** are additional true and correct excerpts from the transcript of the deposition of Dr. Siraj Mahamed Ali in the above-captioned matter.

9. Attached hereto as **Exhibit 50** is a true and correct copy of a document produced by Guardant Health, Inc. in this matter bearing bates numbers GHI00037189-91.

10. Attached hereto as **Exhibit 51** is a true and correct copy the list of speakers who participated in the World CB&CDx 2017 Conference, retrieved from http://world-cdx.com/about/speakers/ on February 27, 2018.

11. Attached hereto as **Exhibit 52** is a true and correct copy of a document produced by Guardant Health, Inc. in this matter bearing bates numbers GHI00074814-15.

12. Attached hereto as **Exhibit 53** is a true and correct copy of a document produced by Guardant Health, Inc. in this matter bearing bates numbers GHI00037501-02.

13. Attached hereto as **Exhibit 54** are additional true and correct excerpts from the transcript of the deposition of Dr. Garrett Frampton in the above-captioned matter.

14. Attached hereto as **Exhibit 55** is a true and correct copy of a document produced by Foundation Medicine, Inc. in this matter bearing bates numbers FMI00087352-53.

15. Attached hereto as **Exhibit 56** is a true and correct copy of Exhibit 7 to the Declaration of Dr. Garrett Frampton, dated December 22, 2017, submitted in support of Foundation Medicine Inc.'s Motion for Preliminary Injunction in the above-captioned matter. (ECF. No. 111-1).

16. Attached hereto as **Exhibit 57** is a true and correct copy of a document produced by Guardant Health, Inc. in this matter bearing bates number GHI00096199.

17. Attached hereto as **Exhibit 58** is a true and correct copy of a document produced by Guardant Health, Inc. in this matter bearing bates numbers GHI00096201-02.

I declare under penalty of perjury that the foregoing is true and correct. Executed in New York, New York on this 28th day of February, 2018.

AMANDA M. BARTLETT

EXHIBIT 43

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

---oOo---

GUARDANT HEALTH, a Delaware corporation,

Plaintiff,

vs. No. 3:17-cv-3590

FOUNDATION MEDICINE, INC., a Delaware corporation,

Defendant.

_____/

HIGHLY CONFIDENTIAL - OUTSIDE ATTORNEYS' EYES ONLY

VIDEOTAPED DEPOSITION OF

HELMY ELTOUKHY, PH.D.

(30(B)(6) DESIGNEE, GUARDANT HEALTH, INC.)

WEDNESDAY, FEBRUARY 7, 2018

REPORTED BY: HOLLY THUMAN, CSR No. 6834, RMR, CRR

(NY-161280)

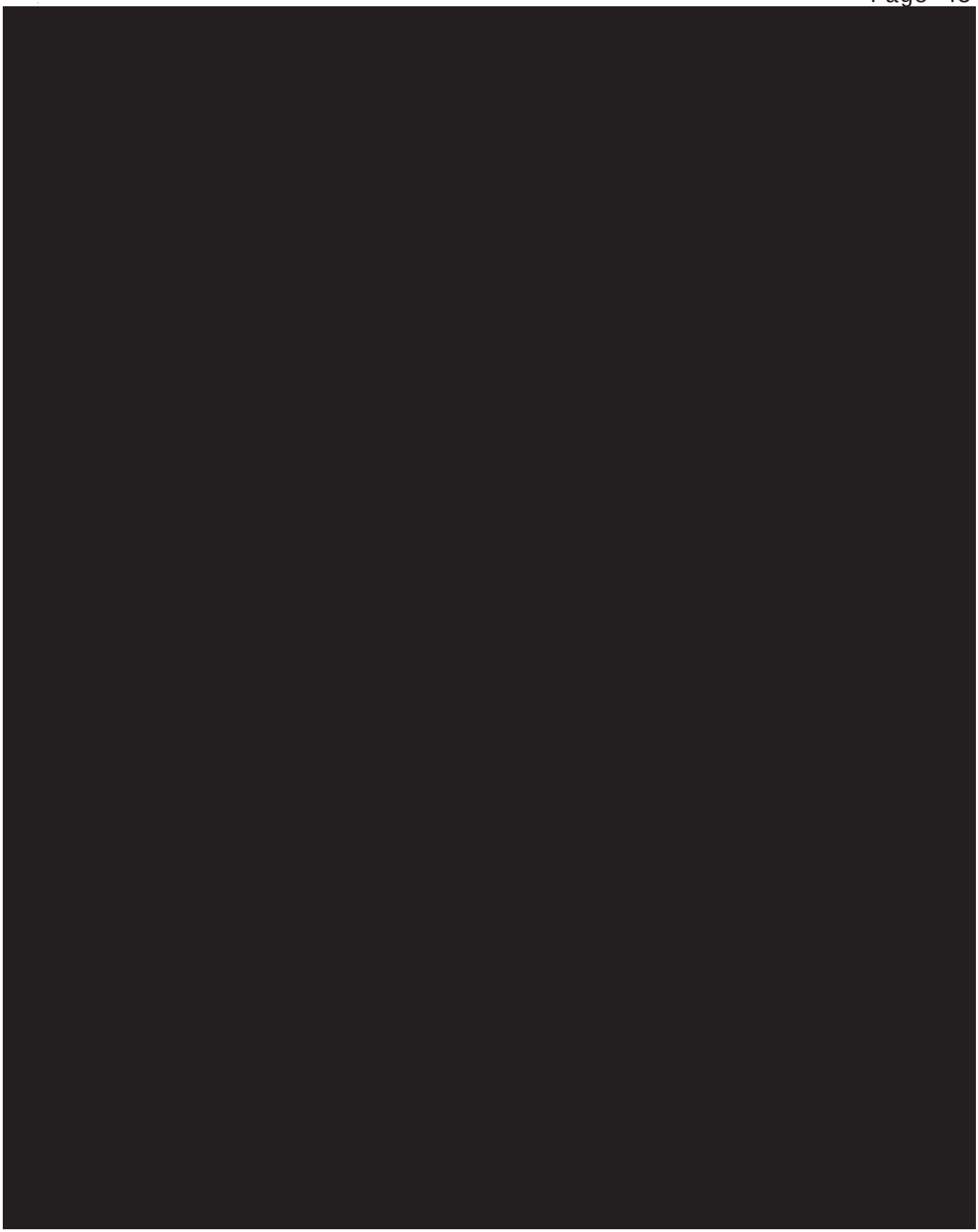
[redacted]

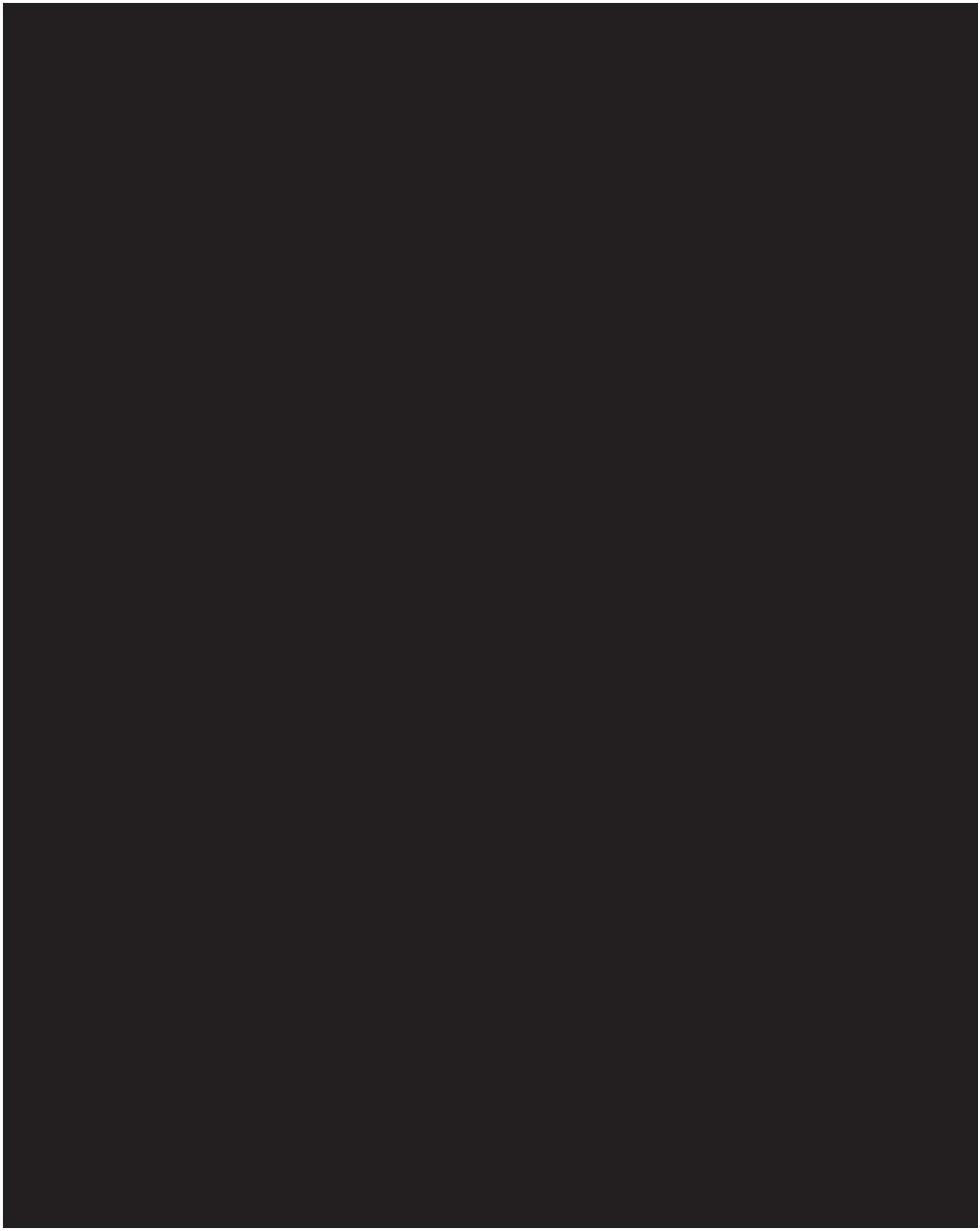
[redacted]

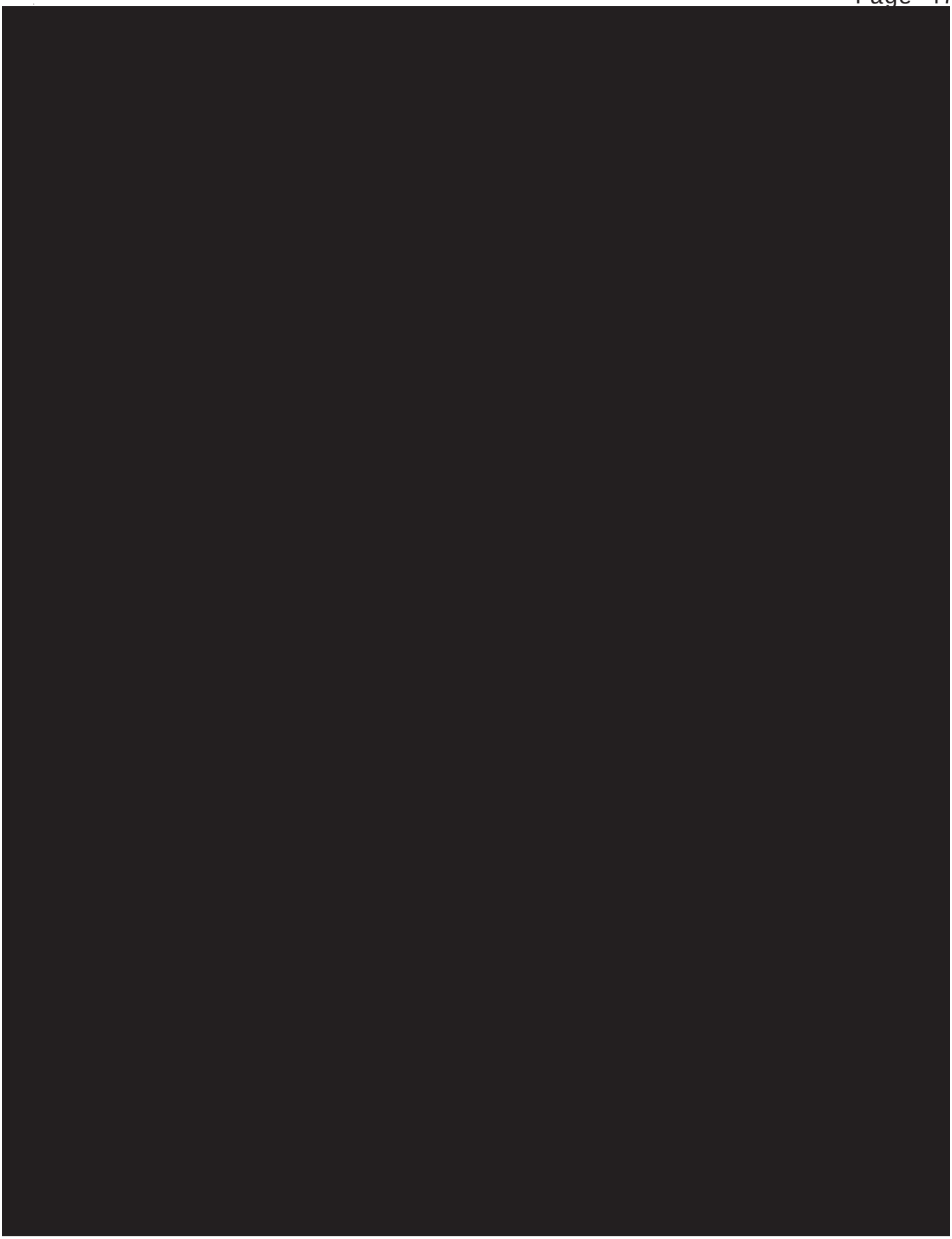
[redacted]

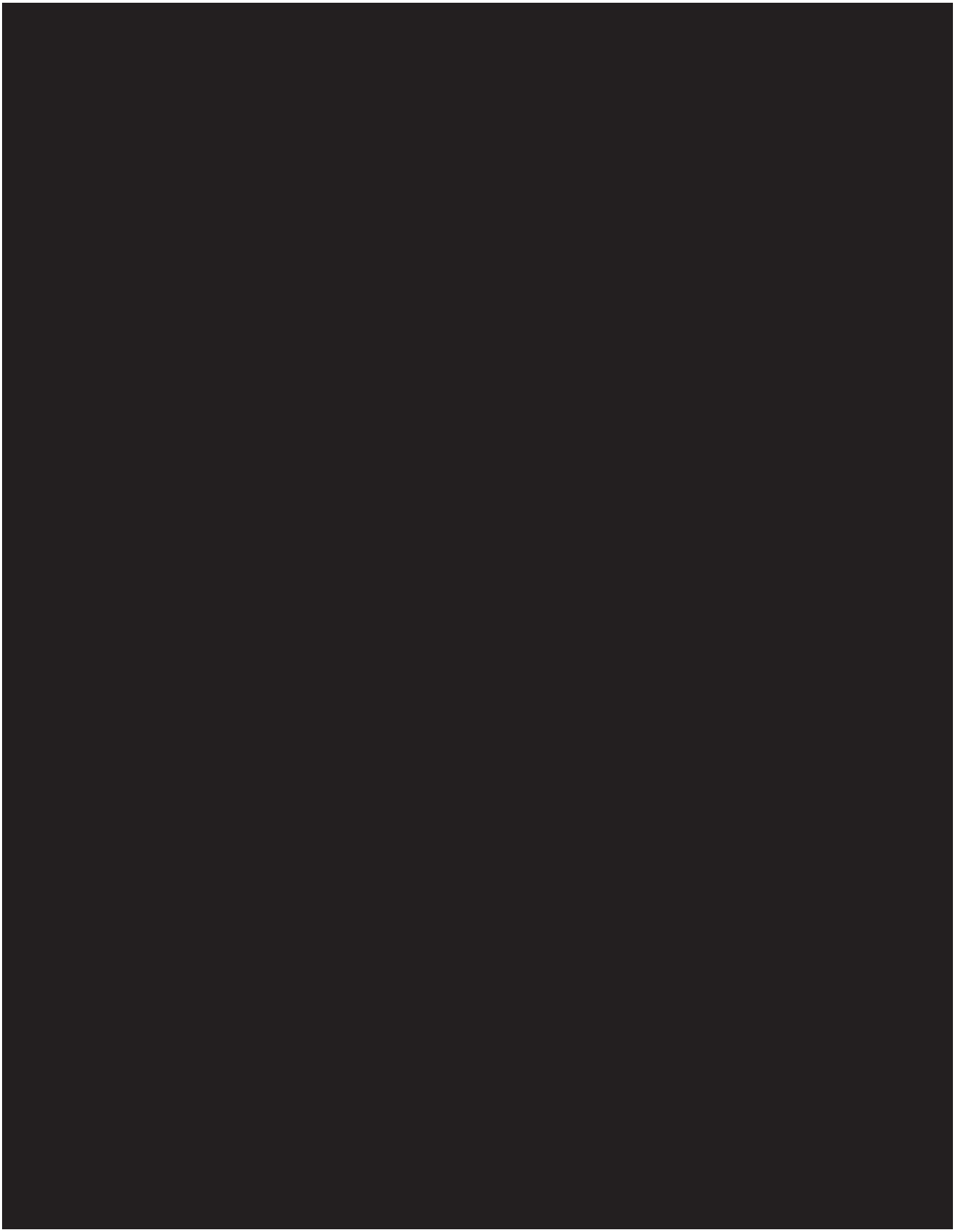
[redacted]

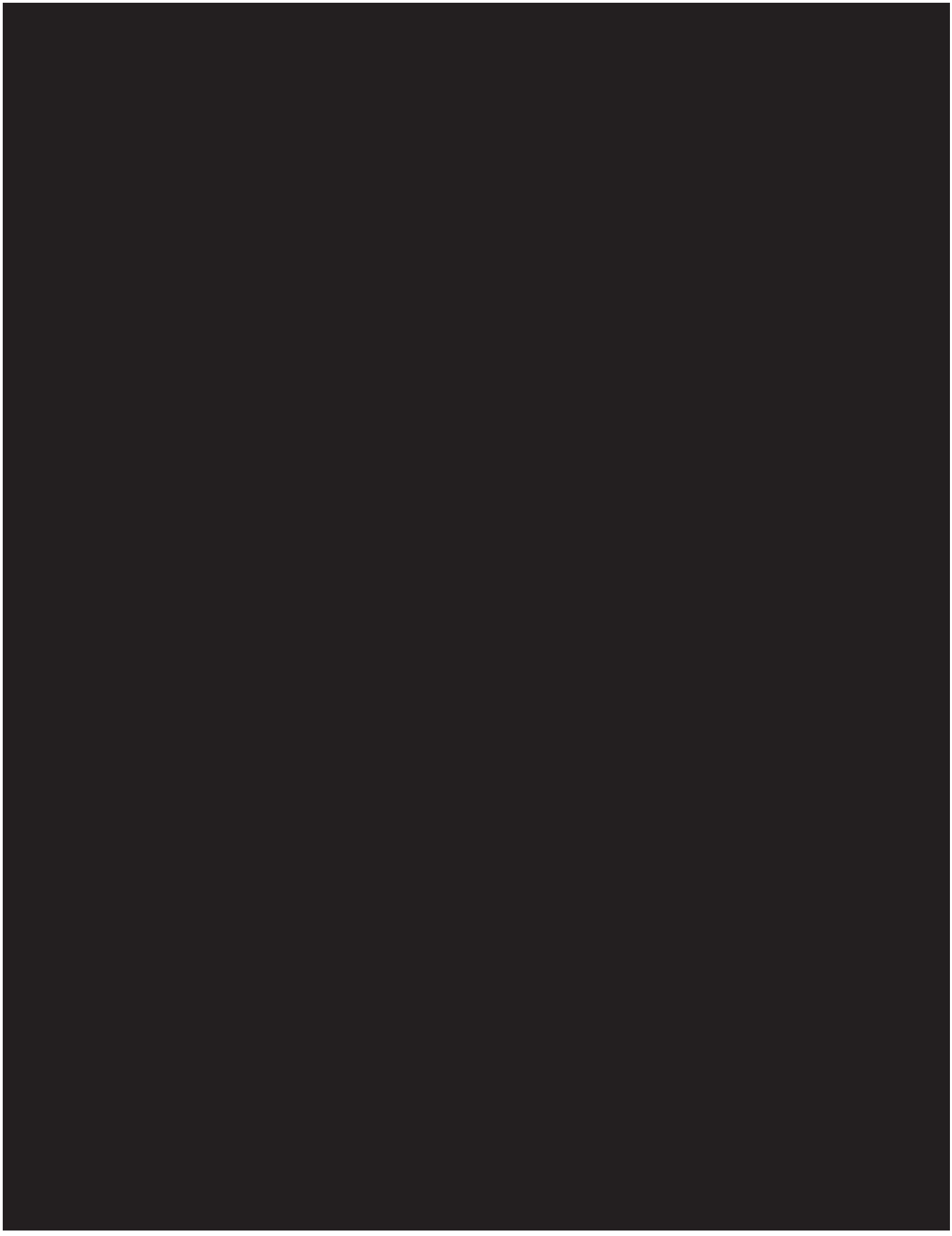
[redacted]

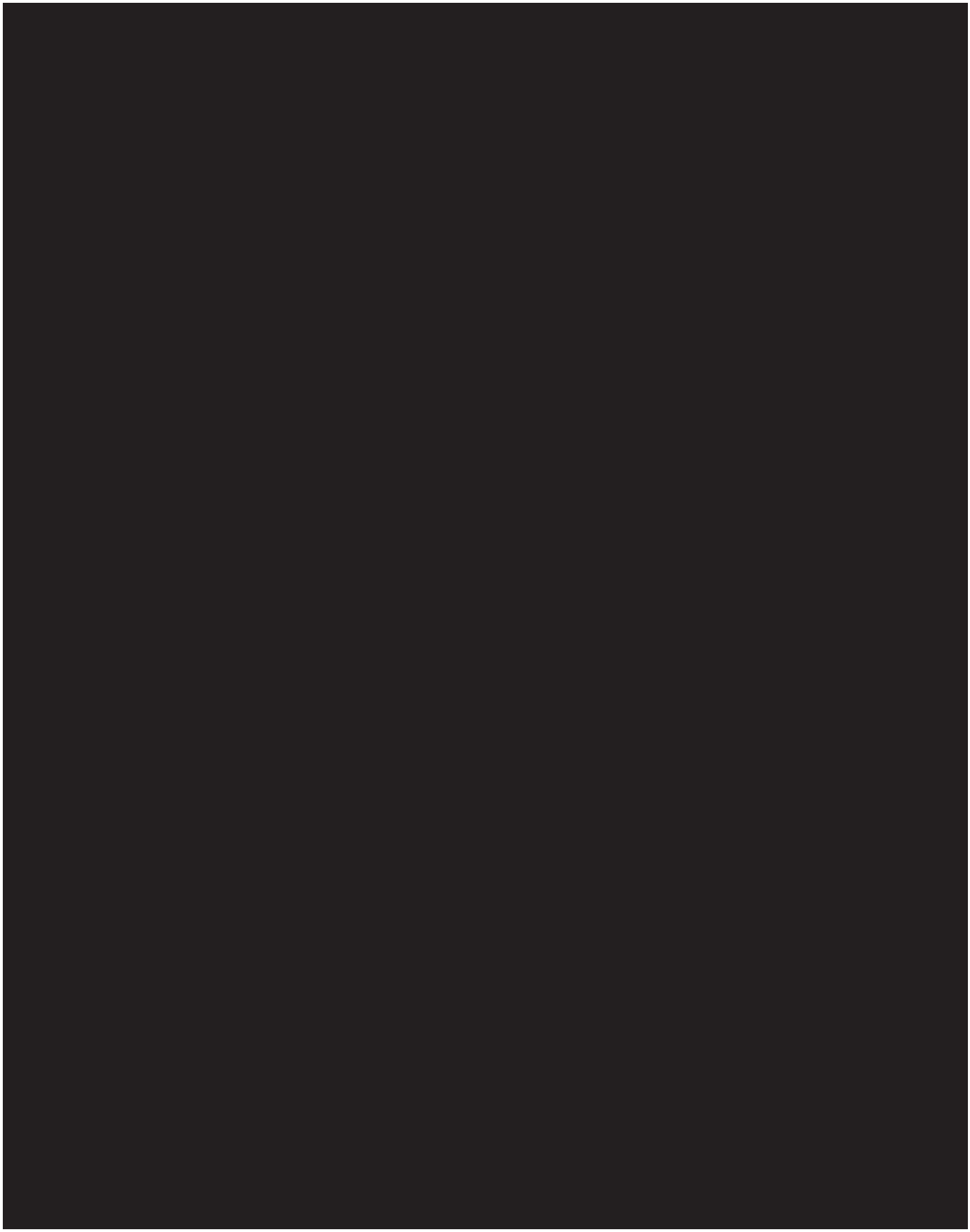












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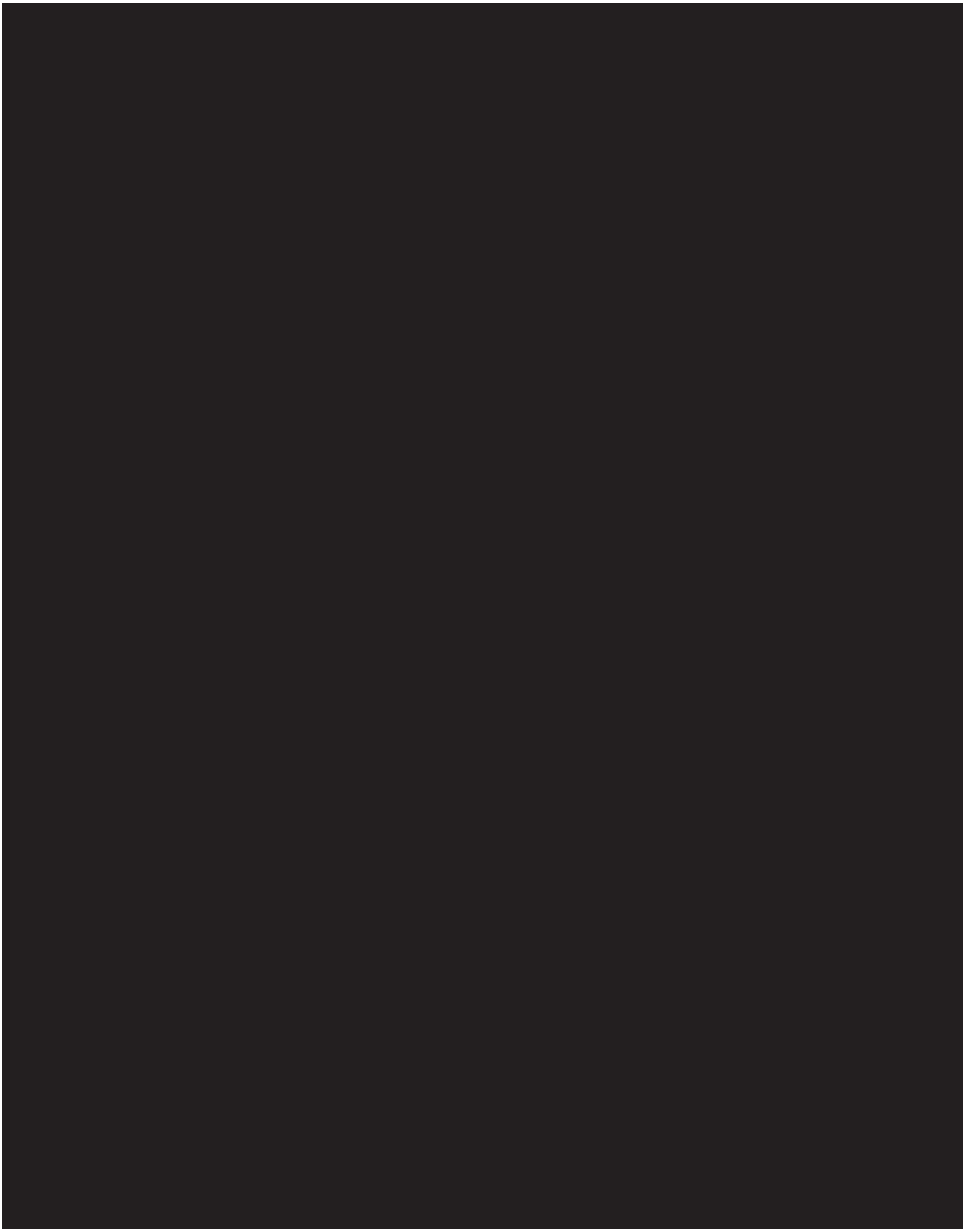


[redacted]

CERTIFICATE OF REPORTER

I, HOLLY THUMAN, a Certified Shorthand Reporter, hereby certify that the witness in the foregoing deposition was by me duly sworn to tell the truth, the whole truth, and nothing but the truth in the within-entitled cause; that said deposition was taken down in shorthand by me, a disinterested person, at the time and place therein stated; and that the testimony of said witness was thereafter reduced to typewriting, by computer, under my direction and supervision;

That before completion of the deposition review of the transcript [X] was [] was not requested/offered. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed are appended hereto.

I further certify that I am not of counsel or attorney for either or any of the parties to the said deposition, nor in any way interested in the event of this cause, and that I am not related to any of the parties thereto.

DATED: February 8, 2018

_____

HOLLY THUMAN, CSR

EXHIBIT 44

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

GUARDANT HEALTH, INC., a Delaware corporation,

Plaintiff/Counterclaim Defendant,

vs. No. 3:17-cv-3590

FOUNDATION MEDICINE, INC., a Delaware corporation,

Defendant/Counterclaimant.

_____/

*** HIGHLY CONFIDENTIAL ***

DEPOSITION OF MARK JACOBSTEIN

(personally and as 30(b)(6) representative of Guardant Health, Inc.)

January 29, 2018

Reported by:
Natalie Y. Botelho
CSR No. 9897

CERTIFICATE OF REPORTER

I, Natalie Y. Botelho, a Certified Shorthand Reporter, hereby certify that the witness in the foregoing deposition was by me duly sworn to tell the truth, the whole truth, and nothing but the truth in the within-entitled.

The said deposition was taken down in shorthand by me, a disinterested person, at the time and place therein stated, and that the testimony of said witness was thereafter reduced to typewriting, by computer, under my direction and supervision;

That before completion of the deposition, review of the transcript [ ] was|[X] was not requested. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed are appended hereto.

I further certify that I am not of counsel or attorney for either or any of the parties to the said deposition, nor in any way interested in the event of this cause, and that I am not related to any of the parties thereto.

DATED: February 1, 2018

Natalie Y Botelho

Natalie Y. Botelho, CSR No. 9897

EXHIBIT 45

GUARDANT360

Guardant360: Extensively validated in the lab, by leading cancer centers, and by community oncologists

Guardant360® has been the most validated comprehensive liquid biopsy since its commercial introduction in 2014. Today, after **20,000** clinical samples, Guardant Health has contributed to **7** peer-reviewed publications and more than **60** abstracts and posters at scientific conferences such as ASCO, AACR, and SABCS. Guardant360 is used by the vast majority of leading cancer centers.

Academia

Doctors at almost all NCI comprehensive cancer centers use Guardant360. Our collaborators have extensively validated Guardant360 through their research and clinical practice, and presented their findings at conferences such as ASCO and AACR.

For a partial list of Guardant360's scientific contributions, see the reverse side.

Community

More than half our clinical sample volume comes from community oncologists. We serve medical oncologists in 46 out of 50 states.

Analytical, clinical validation through peer-reviewed publication

ANALYTIC SPECIFICITY	99.9999%
SENSITIVE DETECTION	<0.1%
COMMERCIAL INTRODUCTION	2014

Questions to ask about any liquid biopsy

How many doctors use this test?

- More than 2,500 oncologists order Guardant360

Where can I read your analytical and clinical validation study?

- Guardant Health published this study in *PLOS ONE* in 2015

Which biopharma companies use your test in their clinical trials?

- Guardant Health works with nearly two dozen drug companies to power their clinical trials

GUARDANTHEALTH | 1.855.698.8887 client services | clientservices@guardanthealth.com | www.guardanthealth.com

TST-BRO-032 V1

Guardant360: Publications and Abstracts

Circulating cell-free DNA profiling of patients with advanced urothelial carcinoma of the bladder
ASCO 2016 Rebecca Nagy et al.

Role of genomic instability in immunotherapy with checkpoint inhibitors
ASCO 2016 George Yaghmour et al.

Prospective evaluation of circulating cell-free DNA sequencing in patients with metastatic renal cell carcinoma treated with pazopanib plus abexinostat
ASCO 2016 Jim Leng e: al.

Investigating the utility of comprehensive genomic profiling for patients with newly diagnosed breast cancer
ASCO 2016 Casey B. Williams et al.

Profiling of circulating tumor (ct)-DNA for potentially actionable targets in prostate cancer (PCa)
ASCO 2016 Guru Sonpavde et al.

Detection, frequency and actionability of recurrent copy number gains detected by non-invasive liquid biopsy of 3,942 lung and breast cancer samples
ASCO 2016 Diana Abdueva et al.

Early, molecular detection of cancer utilizing circulating cell-free DNA assay with ultra high accuracy and sensitivity
ASCO 2016 Stefanie Mortimer et al.

Functional characterization of VUS mutations found in patients' cell-free circulating tumor DNA (ctDNA) using Precision Cancer Analysis System (PCAS)
ASCO 2016 Gabi Tarcic et al.

Cell-free DNA sequencing-guided therapy in a prospective clinical trial: NEXT 2 trial—A feasibility analysis
ASCO 2016 Jeeyun Lee et al.

Plasma T790M result alters treatment options in a previously T790 wild-type EGFR-mutant patient
Journal of Thoracic Oncology, 2016 Zofia Piotrowska, Benjamin Drapkin, Jeffrey A. Engelman, Rebecca J. Nagy, Richard B. Lanman, Lecia V. Sequst

Comparison of over 10,000 clinical NGS circulating tumor DNA profiles to tissue- derived genomic compendia
AACR 2016 Abstract Oliver A. Zill, Kimberly C. Banks, Coyt Jackson, Stefanie Mortimer, Arthur Baca, Becky Nagy, Richard B. Lanman, Helmy Eltoukhy, AmirAli Talasaz.

Salvage MET amplification detection and therapy through cell-free DNA NGS in a progressing lung cancer patient
AACR 2016 Abstract Nir Peled, Anna Belilovski, Lior Soussan-Gutman, Richard B. Lanman, AmirAli Talasaz

Managing metastatic breast cancer via serial monitoring with circulating cell-free tumor DNA next generation sequencing testing *AACR 2016 Abstract*
Laura Austin, Rebecca Nagy, Oliver Zill, Richard B. Lanman, AmirAli Talasaz, Massimo Cristofanilli

Post-surgical resection monitoring in early stage colorectal carcinoma patients using a circulating cell-free DNA assay with ultra-high accuracy and specificity
AACR 2016 Abstract Stefanie A. Mortimer, Katharine Dilger, Stephen Fairclough, Diana Abdueva, Darya Chudova, Aniki Sarin, Jim Leng, Jeeyun Lee3, Helmy Eltoukhy, AmirAli Talasaz

A case series of ERBB2 indel driver mutations in non-small cell lung cancer identified by cell-free circulating tumor DNA NGS
AACR 2016 Abstract Nir Peled, Anna Belilovski-Rozenblum, Lior Scussan-Gutman, Christine Lee, AmirAli Talasaz, Richard B. Lanman.

Detection rate of actionable mutations in diverse cancers using a biopsy-free (blood) circulating tumor cell DNA assay
Oncotarget, 2016 Maria Schwaederle, Hatim Husain, Paul T. Fanta, David E. Piccioni, Santosh Kesari, Richard B. Schwab, Kimberly C. Banks, Richard B. Lanman, AmirAli Talasaz, Barbara A. Parker, Razelle Kurzrock

Detection of Activating Estrogen Receptor 1 (ESR1) in Circulating Tumor DNA (ctDNA) in Hormone-Receptor Positive Metastatic Breast Cancer (MBC)]
San Antonio Breast Cancer 2015 Symposium Abstract L. Austin, A. Rodriguez, R. Jaslow, P. Fortina, R. Nagy, O. Zill, A. Talasaz, M. Cristofanilli

Circulating Tumor DNA (ctDNA) for Detection of Molecular Residual Disease (MoRD) in Breast Cancer
San Antonio Breast Cancer 2015 Symposium Abstract L. Austin, R. Jaslow, P. Fortina, R. Nagy, O. Zill, A. Talasaz, M. Cristofanilli

Cell-free DNA as molecular tool for monitoring disease progression and response to therapy in breast cancer patients
SABCS 2015 Liang DH, Patel A, Ensor JE, Patel TA, Chang JC, Rodriguez AA.

Impact of Multi Targeted Epigenetic Therapy (MTET): A Series of 100 Consecutive Advanced Solid Tumor Cancers
AACR 2015 Molecular Targets and Cancer Therapeutics Abstract M. A. Nezami, Steven Hager, Richard Lanman

Circulating Cell-Free DNA As a Marker For Response and Resistance to BRAF and EGFR Inhibition in BRAF-Mutated Metastatic Colorectal Cancer
AACR 2015 Molecular Targets and Cancer Therapeutics Abstract Van Morris, Filip Janku, Helen Huang, Siqing Fu, Michael Overman, Sarina Piha-Paul, Vivek Subbiah, Bryan Kee, Apostolia Tsimberidou, David Fogelman, Imad Shureiqi, Shanequa Manuel, Antonio Scarmardo, Richard Lanman, Nicolas Sommer, David Hong, Scott Kopetz

Next-Generation Sequencing of Biopsy-Free Circulating Tumor DNA Revealed Frequent Actionable Alterations in Advanced Hepatocellular Carcinoma
AACR 2015 Molecular Targets and Cancer Therapeutics Abstract Sadakatsu Ikeda, Kimberly Banks, Richard B. Lanman, Razelle Kurzrock

Differentiating Somatic and Germline Variants Using Targeted Next-Generation Sequencing (NGS) of Cell-Free Plasma DNA (cfDNA) *AACR 2015 Molecular Targets and Cancer Therapeutics Abstract* Geoffrey R. Oxnard, Adrian G. Sacher, Ryan S. Alden, Nora B. Feeney, Jennifer C. Heng, Rebecca J. Nagy, Richard B. Lanman, Cloud P. Paweletz, Pasi A. Janne

Development of EGFR C797S Mutation in Serial Liquid Biopsy Assessments in the Clinical Practice Setting
AACR 2015 Molecular Targets and Cancer Therapeutics Abstract Kathryn F. Mileham, Qing Zhang, Carol J. Farhangfar, Daniel E. Haggstrom, Stephen Fairclough, Oliver A. Zill, Daniel R. Carrizosa, Richard B. Lanman, Edward S. Kim

Cell free DNA (ctDNA) to Monitor Clonal Evolution in Patients with KRAS Wild-Type Metastatic Colorectal Cancer: Preliminary Results of a Phase I/II Clinical Trial of the Anti-MET Multi Kinase Inhibitor Cabozantinib Plus the Anti-EGFR Monoclonal Antibody Panitumumab
AACR 2015 Molecular Targets and Cancer Therapeutics Abstract John H. Strickler, Tian Zhang, Andrew J. Armstrong, Donna Niedzwiecki, Hope E. Uronis, Michael A. Morse, S. Yousuf Zafar, Shiao-Wen D. Hsu, Christy C. Arrowood, Rebecca Nagy, AmirAli Talasaz, Richard Lanman, Sherri Haley, Herbert I. Hurwitz

Genomic Profiling of Over 5,000 Consecutive Cancer Patients With a CLIA-Certified Cell-Free DNA NGS Test: Analytic and Clinical Validity and Utility
AACR 2015 Molecular Targets and Cancer Therapeutics Abstract Kimberly C. Banks, Stefanie A. W. Mortimer, Oliver A. Zill, Richard B. Lanman, Helmy Eltoukhy, AmirAli Talasaz.

Analytical and Clinical Validation of a Digital Sequencing Panel for Quantitative, Highly Accurate Evaluation of Cell-Free Circulating Tumor DNA
PLoS ONE, 2015 Richard B. Lanman, Stefanie A. Mortimer, Oliver A. Zill, Dragan Sebisanovic, Rene Lopez, Sibel Blau, Eric A. Collisson, Stephen G. Divers, Dave S. B. Hoon, Scott Kopetz, Jeeyun Lee, Petros Nikolinakos, Arthur M. Baca, Bahram G. Kermani, Helmy Eltoukhy, AmirAli Talasaz

A Multicenter, Open-Label Phase II Clinical Trial of Combined MEK Plus EGFR Inhibition for Chemotherapy-Refractory Advanced Pancreatic Adenocarcinoma
Clinical Cancer Research, 2015 Andrew H. Ko, Tanios Bekaii-Saab, Jessica van Ziffle, Olga K Mirzoeva, Nancy Joseph, AmirAli Talasaz, Peter Kuhn, Margaret A. Tempero, Eric Collisson, Robin K. Kelley, Alan Venook, Elizabeth Dito, Anna Ong, Sharvina Ziyeh, Ryan Courtin, Regina Linetskaya, Sanaa Tahiri, and W. Michael Korn

Cell-Free DNA Next-Generation Sequencing in Pancreatobiliary Carcinomas
Cancer Discovery, 2015 Oliver A. Zill, Claire Greene,Dragan Sebisanovic, Laimun Siew, Jim Leng,Mary Vu, Andrew E. Hendifar, Zhen Wang, Chloe E. Atreya, Robin K. Kelly, Katherine Van Loon, Andrew H. Ko, Margaret A. Tempero, Trever G. Bivona, Pamela N. Munster, Amir Ali Talasaz, Eric A. Collisson

Biopsy-free comprehensive genomic profiling of over 5,000 cancer patients using a CLIA certified commercial cell free DNA next-generation sequencing test.
ASHG 2015 S. Mortimer, O. Zill, J. Vowles, R. Lopez, D. Delubac,; K. Dilger, R. Mokhtari, W. Chen, S. Bakhtiari, C. Jackson, T. Vo, B. Kermani, K. Banks, R. Nagy,; A. Baca, R. Lanman, H. Eltoukhy, A. Talasaz

Clinical utility of a circulating cell-free DNA assay for clinical trial enrollment in refractory metastatic colorectal cancer patients
ASCO 2015 Abstract Van Morris, Maria P. Morelli, Michael Overman, Bryan Kee, David Fogelman, Eduardo Vilar, Imad Shureiqi, Christopher Garrett, Kanwal Raghav, Cathy Eng, Shanequa Manuel, Robert A. Wolff, Helmy Eltoukhy, Richard Lanman, Amir Ali Talasaz, Scott Kopetz

Predictors of clonal evolution in metastatic colorectal cancer patients *ASCO 2015 Abstract* Pia Morelli, Michael Overman, Bryan Kee, Eduardo Vilar, Van Morris, David Fogelman, Imad Shureiqi, Chris Garrej, Kanwal Raghav, Cathy Eng, Shanequa Manuel, Robert A. Wolff, Dragan Sebisanovic, Lai Mun Siew, Aubrey Zapanta, Ben Schiller, Gangwu Mei, Helmy Eltoukhy, AmirAli Talasaz, Scott Kopetz

Analysis of cell-free circulating tumor DNA in patients with glioblastoma and other primary brain tumors
ASCO 2015 Abstract David Piccioni, Kimberly C Banks, Richard B Lanman, Brad Brown, Marlon Saria, AmirAli Talasaz, Sandeep C. Pingle, Santosh Kesari

Prospective clinical application of circulating cell-free DNA sequencing in metastatic colorectal cancer
AACR 2015 Abstract Maria Pia Morelli, Michael Overman, Eduardo Vilar, Van Morris, David Fogelman, Imad Shureiqi, Chris Garret, Raghav Kanwal, Cathy Eng, Brian Kee, Shanequa Manuel, Robert Wolff, Dragon Sebisanovic, LaiMun Sew, Aubey Zapanta, Ben Shiller, Gangwu Mei, Helmy Eltoukhy, AmirAli Talasaz, Scott Kopetz

Biopsy-free comprehensive tumor profiling of 2,000+ consecutive cancer patients using CLIA-certified commercial test and its clinical utility
AACR 2015 Abstract Eric Collisson, Stefanie Mortimer, Dragan Sebisanovic, Reza Mokhtari, Somayeh Bakhtiari, Rene Lopez, Devi M. Gaddie, Maria M. Vidamo, Heena Patel, Bahram G. Kermani, Helmy Eltoukhy, Richard B. Lanman, AmirAli Talasaz

Next-generation sequence analysis of cell-free DNA in patients with chemotherapy refractory advanced pancreatic adenocarcinoma (PDAC) treated with selumetinib (AZD6244) and erlotinib
AACR 2015 Abstract Andrew H. Ko, Tanios Bekaii-Saab, Ryan Courtin, Olga K. Mirzoeva, Sharvina Zyeh, Robin K. Kelley, Elizabeth Ditto, Anna Ong, Regina Linetskaya, Margaret Tempero, Alan P. Venook, Amirali Talasaz, Wolfgang Michael Korn

Clinical utility of circulating tumor DNA (ctDNA) in advanced and metastatic breast cancer
AACR 2015 Abstract Laura K. Austin, Rebecca Jaslow, Tiffany Avery, Paolo Fortina, Dragan Sebisanovic, LaiMun Siew, Aubrey Zapanta, AmirAli Talasaz, Massimo Cristofanilli

Concordance of circulating tumor DNA (tDNA) and next-generation sequencing (NGS) as molecular monitoring tools in metastatic breast cancer (MBC)
AACR 2015 Abstract Laura K. Austin, Tiffany Avery, Rebecca Jaslow, Paolo Fortina, Dragan Sebisanovic, LaiMun Siew, Aubrey Zapanta, AmirAli Talasaz, Massimo Cristofanilli

Comparison of mutational spectra in metastatic tumors and cell-free DNA in breast cancer patients
AACR 2015 Abstract Kara N. Maxwell, Danielle J. Soucier-Ernst, Erica L. Carpenter, Andrea B. Troxel, Christopher Colameco, Candace Clark, Michael D. Feldman, Bijal Kakrecha, Melissa Langer, Joy Lee, David A. Lewis, David Lieberman, Jennifer Morrissette, Tien-chi Pan, Stephanie S. Yee, Natalie Snin, Lewis A. Chodosh, Angela M. DeMichele.

Circulating tumor DNA (ctDNA) as a molecular monitoring tool in metastatic breast cancer (MBC)
Journal of Clinical Oncology, 32:5s 2014 (suppl; abstr 11093) Austin LK, Fortina P, Sebisanovic D, Siew L, Zapanta A, Talasaz A, Cristofanili M

Frequency of concurrent gene mutations and copy number alterations in circulating cell-free DNA (cfDNA) from refractory metastatic CRC patients
Journal of Clinical Oncology, 32:5s 2014 (suppl; abstr 11117) Morelli MP, Overman MJ, Sanchez EV, Morris VK, Shureiqi I, Garrett C, Fogelman D, Pratap K, Raghav S, Kee BK, Zapanta A, Mei G, Schiller B, Eltoukhy H, Talasaz A, Kopetz S

Identification of multiple informative genomic mutations by deep sequencing of circulating cell-free tumor DNA in plasma of metastatic melanoma patients
Journal of Clinical Oncology, 32:5s 2014 (suppl; abstr 9018) Hoon DSB, Huang S, Sebisanovic D, Siew L, Zapanta A, Mortimer S, Talasaz A

Use of Guardant360 noninvasive tumor sequencing assay on 300 patients across colorectal, melanoma, lung, breast and prostate cancers and its clinical utility
Journal of Clinical Oncology, 2014 (suppl; abstr e22041) Talasaz A, Mortimer S, Sebisanovic D, Siew L, Zapanta A, Mei G, Schiller B, Eltoukhy H

Comprehensive non-invasive tumor sequencing: High fidelity sequencing of tumor-derived circulating cell-free DNA across 300 cancer patients
AACR 2014 Abstract Mortimer S, Sebisanovic D, Mei G, Schiller B, Siew L, Zapanta A, Eltoukny H, Talasaz A

Ultra-high quality sequencing assay for comprehensive genetic panel analysis of tumor-derived circulating cell-free DNA in colorectal patients
Journal of Clinical Oncology, 2014 (suppl 3; abstr 504) Lee J, Mortimer S, Sebisanovic D, Mei G, Siew L, Eltoukhy H, Talasaz A

Ultra-high quality sequencing assay for comprehensive genetic panel analysis of rare tumor-derived circulating cell-free DNA
ASHG, Boston 2013 Talasaz A, Sebisanovic D, Mei G, Siew L, Eltoukhy H

Liquid biopsy-based assays to monitor residual disease in cancer
Journal of Clinical Oncology, 2013 (suppl; abstr 11096) Mei G, Sebisanovic D, Mir A, Gulzar Z, Brooks JD, Jeffery SS, Talasaz A

EXHIBIT 46

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

GUARDANT HEALTH, INC.,
a Delaware corporation,

Plaintiff/Counter-Defendant,

vs. Case No. 3:17-cv-3590

FOUNDATION MEDICINE, INC.,
a Delaware corporation,

Defendant/Counter-Plaintiff.
----------/

* CONFIDENTIAL PURSUANT TO PROTECTIVE ORDER *

VIDEOTAPED DEPOSITION OF VICTORIA WANG, M.D., Ph.D.

San Francisco, California

Wednesday, January 17, 2018

Reported by:
LORRIE L. MARCHANT, CSR No. 10523
RMR, CRR, CCRR, CRC

Job No. 135724

Am I correct that in Exhibit 2, the pages 24 through 27 are patient records of this 41-year-old patient?

A. Correct. Correct.

Q. So this is the patient records for the person described in the letter to the editor that is Exhibit 3?

A. Correct.

Q. Okay. Can you tell from this the number of days between when the first cycle of chemotherapy happened and blood was drawn for the FoundationACT assay?

A. No. Because I don't have the date of this medical note.

Q. Which medical note? I see dates on it. I'm just -- when you say "I don't" -- what -- what note?

A. The date -- the date that this note was written. Because I see Cycle 1 was given on June 15th.

Q. Okay.

A. Okay. And I just do not know off the top of my head when this note was written.

Q. But if this says that Cycle 1 of the chemotherapy was on June 15th, doesn't that mean it

was on June 15th?

A. Right. That's Cycle 1 of chemotherapy. But your question is how many days from Cycle 1 of chemotherapy to when FoundationACT was drawn.

Q. Oh. So you're saying you don't have the date for when you drew blood for FoundationACT on here?

A. Right.

Q. Okay.

A. I believe FoundationACT was drawn on the date this note was written, but there is no date of the note.

Q. Okay. Could you figure that out from your records?

A. Yes. Because I always put a very detailed plan, and in the plan I said:

"Consent was obtained for tumor banking and blood obtained for FoundationACT."

So I think I drew blood on the date this note was written for FoundationACT.

Q. Okay.

A. But the date of the note is not here.

Q. The June 15 date that is listed for Cycle 1, does that mean that Cycle -- the first

BY MR. PERLOFF:

Q. Correct?

A. Yes.

Q. And here you indicate that certainly as of July the 1st, you had drawn blood. And I say that, in the second paragraph:

"I just drew blood to send for FACT for comparison."

A. Okay.

Q. Do you see that?

A. Yes.

Q. So presumably --

A. Yes.

Q. -- sometime either on the 1st or just prior to the 1st --

A. It's probably on July 1st, then.

Q. Okay. Well, it says "drawn today"; right?

A. Okay.

Q. "I drew her blood to send for FACT for comparison; however, not best comparison because Guardant was sent prior to any treatment and FACT drawn today was after one cycle of chemo" --

A. Right.

Q. -- "because she was so symptomatic."

A. Right.
Q. So that gives you a sense that the blood that you drew for the FoundationACT was drawn probably on the 1st?
A. Yes.
Q. And Siraj Ali then wrote back to you, again on the same day, July the 1st -- actually, now that I'm looking at this, do you see how his response is 11:46 a.m.?
A. M-hm.
Q. Is that because he's on the East Coast?
A. I don't know.
Q. Was Siraj Ali on the East Coast?
A. Well, Siraj, I believe is based in Cambridge, but he travels. And so I don't know where he is at any given time.
Q. Well, the reason I'm asking is if you look at the sequence of e-mails --
A. The timing is confusing.
Q. Yes.
A. Yeah, so I don't know.
Q. Okay. But do you recall -- if I'm correct, then, you would have responded not four hours later, but more like 40 minutes later.
So do you recall promptly responding to

DEPOSITION OFFICER'S CERTIFICATE

I, LORRIE L. MARCHANT, Certified Shorthand Reporter, Certificate No. 10523, for the State of California, hereby certify that VICTORIA WANG, M.D. was by me duly sworn/affirmed to testify to the truth, the whole truth and nothing but the truth in the within-entitled cause; that said deposition was taken at the time and place herein named; that the deposition is a true record of the witness's testimony as reported to the best of my ability by me, a duly certified shorthand reporter and a disinterested person, and was thereafter transcribed under my direction into typewriting by computer; that request [ ] was [X] was not made to read and correct said deposition.

I further certify that I am not interested in the outcome of said action, nor connected with, nor related to any of the parties in said action, nor to their respective counsel.

IN WITNESS WHEREOF, I have hereunto set my hand this 19th day of January, 2018.

_____

LORRIE L. MARCHANT, RMR, CRR, CCRR, CRC
Certified Shorthand Reporter #10523

EXHIBIT 47

EXHIBIT 47

TO THE DECLARATION OF AMANDA M. BARTLETT

To be Filed Under Seal

EXHIBIT 48

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
---oOo---

GUARDANT HEALTH, INC.,
a Delaware corporation,

Plaintiff,

vs. No. 3:17-cv-3590

FOUNDATION MEDICINE, INC.,
a Delaware corporation,

Defendant.
_____/

HIGHLY CONFIDENTIAL

VIDEOTAPED DEPOSITION OF PHILIP J. STEPHENS, Ph.D.
SAN FRANCISCO, CALIFORNIA
FRIDAY, FEBRUARY 16, 2018

BY: ANDREA M. IGNACIO, CSR, RPR, CRR, CCRR, CLR ~
CSR LICENSE NO. 9830
JOB NO. 136628

[redacted]

[redacted]

[redacted]

CERTIFICATE OF REPORTER

I, ANDREA M. IGNACIO, hereby certify that the witness in the foregoing deposition was by me duly sworn to tell the truth, the whole truth, and nothing but the truth in the within-entitled cause;

That said deposition was taken in shorthand by me, a disinterested person, at the time and place therein stated, and that the testimony of the said witness was thereafter reduced to typewriting, by computer, under my direction and supervision;

That before completion of the deposition, review of the transcript [ ] was [x] was not requested. If requested, any changes made by the deponent (and provided to the reporter) during the period allowed are appended hereto.

I further certify that I am not of counsel or attorney for either or any of the parties to the said deposition, nor in any way interested in the event of this cause, and that I am not related to any of the parties thereto.

Dated: 2/20/18

_____

ANDREA M. IGNACIO, RPR, CRR, CCRR, CLR, CSR No. 9830

EXHIBIT 49

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION
Case No. 3:17-cv-3590

- X

GUARDANT HEALTH, INC.,
a Delaware corporation,
Plaintiff,
v.
FOUNDATION MEDICINE, INC.,
a Delaware corporation,
Defendant.

- X

VOLUME I Pages 1-265

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

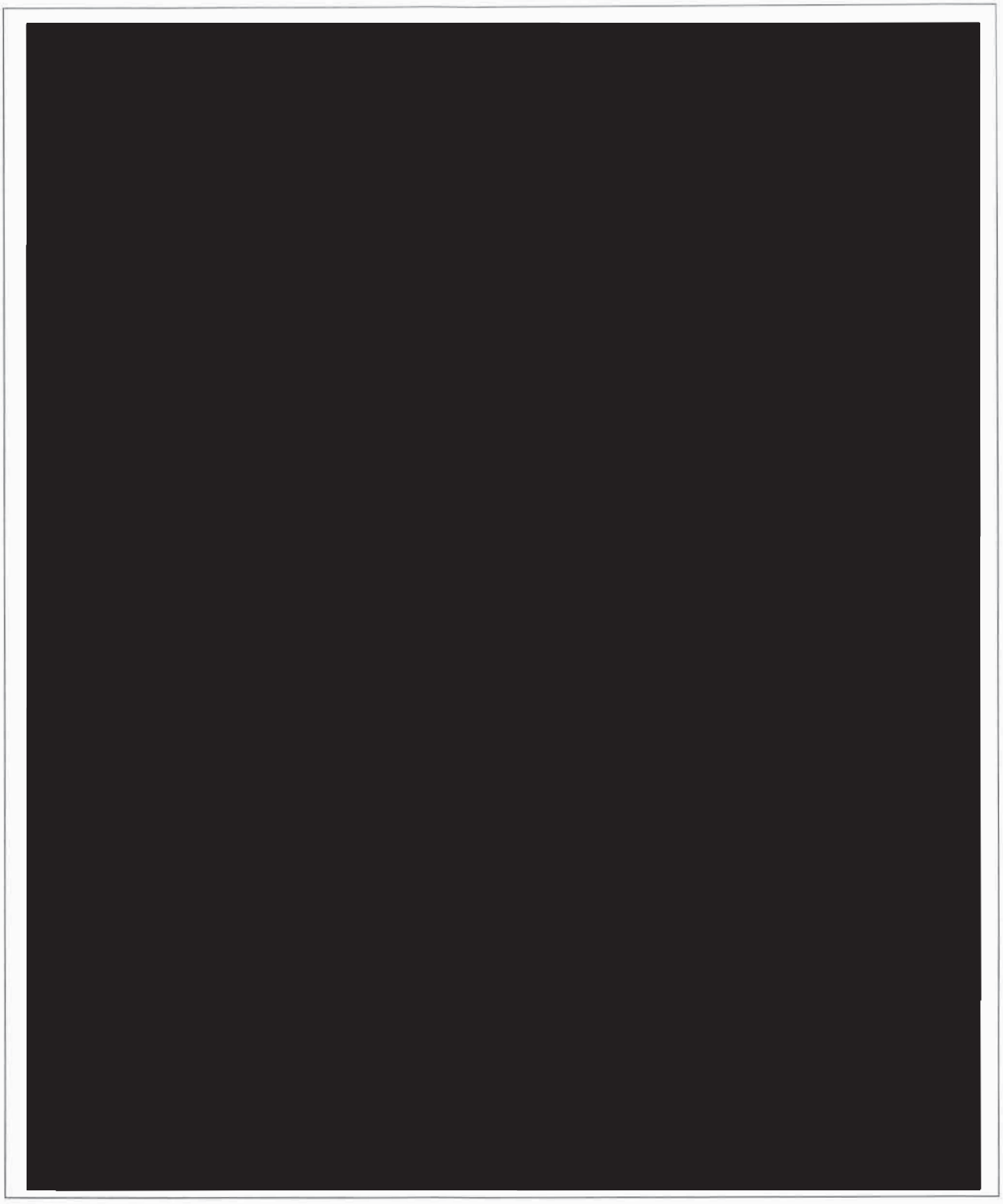
VIDEO DEPOSITION OF SIRAJ MAHAMED ALI, M.D., Ph.D.

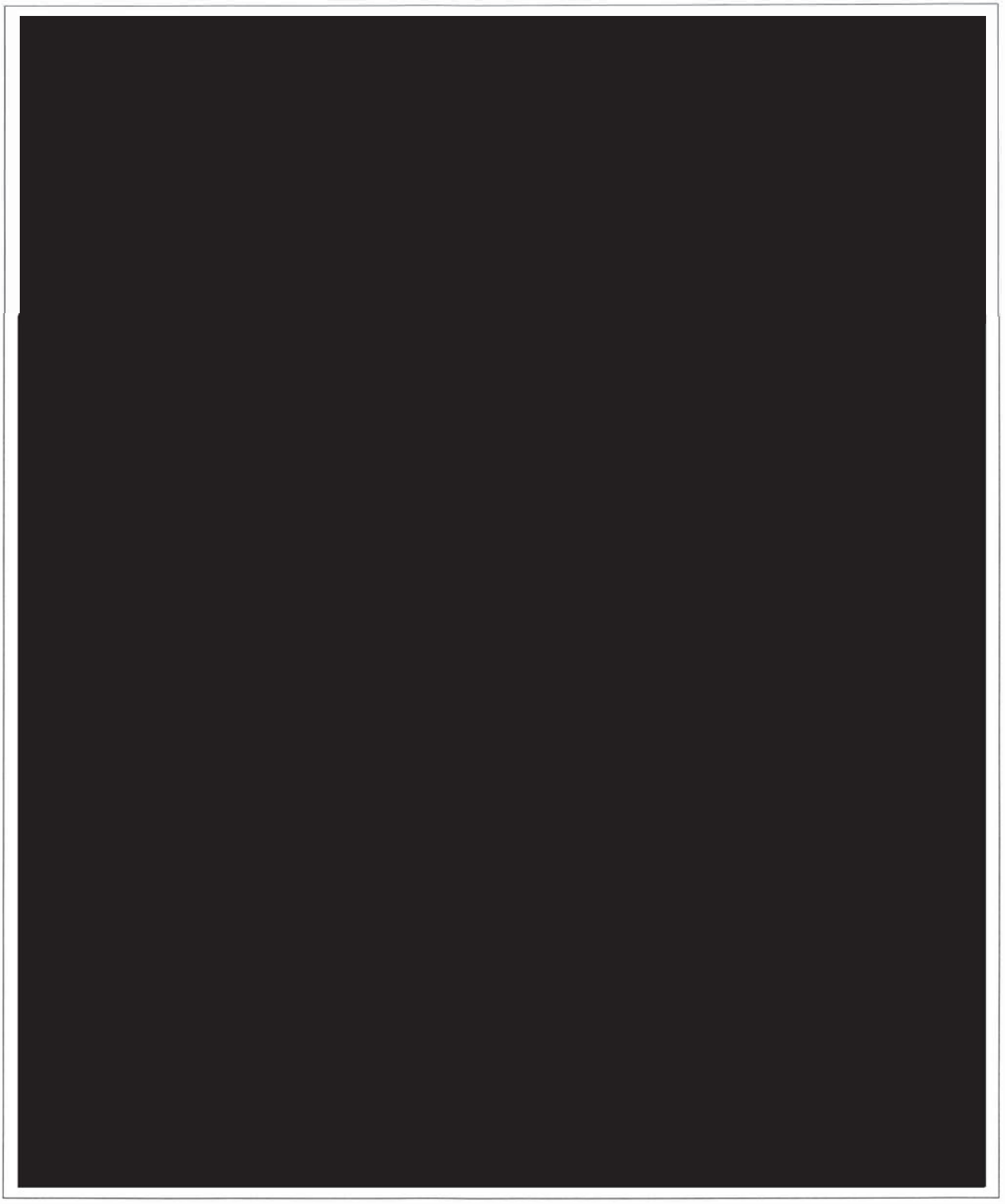
Wednesday, January 24, 2018, 9:35 a.m.

Choate Hall & Stewart LLP
Two International Place
Boston, Massachusetts 02110

--- Reporter: Kimberly A. Smith, CRR, CRC, RDR ---
Realtime Systems Administrator
O'Brien & Levine Court Reporting Solutions

MS. BARTLETT: Hold on one second. Can we get a time check?





C E R T I F I C A T E

I, Kimberly A. Smith, a Certified Realtime Reporter, Certified Realtime Captioner, Registered Diplomate Reporter, Realtime Systems Administrator, and Notary Public in and for the Commonwealth of Massachusetts, do hereby certify that the foregoing deposition of SIRAJ MAHAMED ALI, M.D., Ph.D., who was first duly sworn, taken at the place and on the date hereinbefore set forth, was stenographically reported by me and later reduced to print through computer-aided transcription, and the foregoing is a full and true record of the testimony given by the deponent.

I further certify that I am a disinterested person in the event or outcome of this cause of action.

THE FOREGOING CERTIFICATION OF THIS TRANSCRIPT DOES NOT APPLY TO ANY REPRODUCTION OF THE SAME BY ANY MEANS UNLESS UNDER THE DIRECT CONTROL AND/OR DIRECTION OF THE CERTIFYING COURT REPORTER.

Signed this 30th day of January, 2018.

_____

KIMBERLY A. SMITH, CRR, CRC, RDR

My commission expires: November 20, 2020

EXHIBIT 50

EXHIBIT 50

TO THE DECLARATION OF AMANDA M. BARTLETT

To be Filed Under Seal

EXHIBIT 51

WORLD CB&CDx

October 2 – 4, 2018
Boston, MA

Keep evolving this series of meetings. Companion diagnostics are an integral part of cohort medicine as we continue to progress towards personalized medicine and World CDx is the premier meeting in this space.

Founder,
TMDx Consulting LLC

2017 Speakers

EXPAND/COLLAPSE

Drug Developers

Sunita Badola
Director, Functional Genomics
Takeda

Carl Barrett
Vice President, Translational Sciences, Oncology
Astrazeneca

Christina Bender
Director, Global Oncology, Diagnostic Pipeline Strategy
Novartis

Jason Christiansen
Vice President, Diagnostics
Ignyta

Rodolphe Clerval
Chief Business Officer & Vice President, US Operations
Enterome Bioscience

Benoit Destenaves
Director, Diagnostics Lead
AstraZeneca

Emmanuelle di Tomaso
Vice President & Head of Translational Medicine
Syros Pharmaceuticals

Dan Dransfield
Senior Vice President Research & Development
Siamab Therapeutics

Jakob Dupont
Vice President & Global Head, Breast & Gynecologic Cancer Development
Genentech

Kenneth Emancipator
Executive Medical Director & Head of Companion Diagnostics
Merck

Jeffrey Emch
Biomarker & Companion Diagnostic Lead
Merck

Sarah Hersey
Companion Diagnostics & Precision Medicine Head
Celgene

Peter Hoehn
Co Diagnostics Commercial Strategy Leader
Janssen Pharmaceuticals

Michael Kiebish
Chief Precision Medicine Officer
BERG

David Kaufman
Executive Director, Translational Immuno-Oncology
Merck

Catherine Lofton-Day
Medical Sciences Director
Amgen

Jennifer Mataraza
Senior Investigator & Group Leader, Translational
& Exploratory Immuno-Oncology, NIBR

Eric Meadows
Research Advisor, Global Patient Outcomes & Real World Evidence,
Alzheimer's Diagnostics, Eli Lilly

Dmitri Mikhailov
Head, Biomarker Coordination
Novartis

Matthew Onsum
Director & Head of Bioinformatics
Seattle Genetics

Jonathan Pan
Vice President & Head of Biomarker Strategy & Development
Aevi Genomic Medicine

Charles Paulding
Director, Pharmacogenomics
Regeneron Pharmaceuticals

Debra Rasmussen
Diagnostics Leader & Senior Director, Global Regulatory Affairs
Janssen Pharmaceuticals

Victoria Rimkunas
Senior Scientific Investigator
H3 Biomedicine

Hakan Sakul
Vice President & Head of Diagnostics,
Pfizer

Jason Simon
Scientific Director, Oncology Diagnostics
Janssen R&D

Daniel Stetson
Associate Principal Scientist
AstraZeneca

Zhen Su
Vice President & Head of Global Medical Affairs Oncology
EMD Serono

Martin Tolar
Founder, President & Chief Executive Officer
Alzheon

Sudha Visvanathan
Immunology & Respiratory Team Lead, Translational Medicine
& Biomarker Experts Group, Boehringer Ingelheim

Roman Yelensky
Executive Vice President & Chief Technology Officer
Gritstone Oncology

Academics, Advocates & Associations

Jeff Allen
President & CEO
Friends of Cancer Research

Adam Berger
Senior Staff Fellow, Personalized Medicine
FDA

Chandra Branham
Vice President, Payment and Health Care Delivery Policy
AdvaMed

Khatereh Calleja
Senior Vice President, Technology & Regulatory Affairs
AdvaMedDx

Daniel Catenacci
Associate Director, Gastrointestinal Oncology Program
The University of Chicago Medical Center

Philip Lerner
Vice President & National Medical Director
Aetna

John Longshore
Director, Molecular Pathology, Carolinas Pathology Group
Carolinas HealthCare System

Stuart Martin
Professor
University of Maryland, speaking on behalf of ANGLE plc

Bill Pignato
Principal
W.J. Pignato & Associates

Ferran Prat
Vice President, Strategic Industry Ventures
MD Anderson Cancer Center

Joshua Xu
Principal Investigator, National Center for Toxicological Research (NCTR)
FDA

Diagnostic & Technology Developers

Steve Anderson
CSO
Covance

Jason DeLoach
International Product Manager, CDx
Ventana Companion Diagnostics

Dan Edelstein
Director, Clinical Marketing & New Technology
Sysmex Inostics

Eric Faulkner
Vice President, Precision & Transformative Technology Solutions
Evidera

Jim Godsey
Vice President, R&D, Clinical Sequencing Division
Thermo Fisher Scientific

Karen Gutekunst
Vice President, Diagnostic Development
Illumina

Kalyan Handique
Chief Executive Officer & President
Celsee Diagnostics

Keith Hanigan
Vice President, Integrated Oncology
LabCorp

Debra Hanks
Chief Pathologist, CDx Histopathology
Agilent Technologies

Claire Huguet
Head, Biomarker Services
Randox

Patrick Hurban
Senior Director & Global Head, Translational Sciences
Q2 Solutions

David Kern
Senior Director, Regulatory Affairs
Illumina

Joseph Krueger
Chief Scientific Officer
Flagship Biosciences

Hannah Mamuszka
CEO
ALVA 10

Dawn McHugh
Vice President, Business Development, Personalized Diagnostics
Corgenix

Matthew McManus
CEO
Asuragen

Susanne Munksted
Director, Global Commercial Alliances, Companion Diagnostics
Agilent Technologies

Michael Natan
CEO
Ultivue

Bill Powell
Senior Director, CDx Development
Leica Biosystems

Scott Reid
Director, Strategic Accounts & Companion Diagnostics
NeoGenomics Laboratories

Mark Roberts
Senior Director, Diagnostics Development
Covance

Christophe Roos
Chief Scientific Officer
Euformatics, speaking on behalf of Horizon Discovery

Craig Shimasaki
President & CEO
Moleculera Labs

Bob Silverman
Head of Externalized Drug Discovery Partnering
Roche

Elodie Sollier
Chief Scientific Officer
Vortex Biosciences

Vishal Sikri
US General Manager
Biocartis

John Simmons
Director, Translational Sciences & Diagnostics
Personal Genome Diagnostics

Daniel Simon
Vice President, Pharma Business Development
Guardant Health

Dan Snyder
President & Chief Executive Officer
Molecular MD

Steen Thaarup
Business Development Manager, Pharma
Unilabs

Tom Turi
Vice President, Companion Diagnostics
Covance

Katarina Wikstrom
Director, US Operations
Almac Diagnostics

Jay Wohlgemuth
Senior Vice President & Chief Medical Officer, R&D, Medical & Employee Health
Quest Diagnostics

NEXT PAGE: 2017 AGENDA CLICK HERE >

OUR CONTACT DETAILS

T: West Coast:
+ 1 415 735 3289
T: East Coast:
+1 617 455 4188
E: info@world-cdx.com

VENUE DETAILS

Venue for 2018 to be confirmed
MA, USA

ABOUT US

Hanson Wade's goal is to accelerate progress within organisations and across industries. Our primary method for achieving this is by creating exclusive business conferences that gather together the world's smartest thinkers and doers.

LOCATION

SEARCH

ORGANISED BY

EXHIBIT 52

EXHIBIT 52

TO THE DECLARATION OF AMANDA M. BARTLETT

To be Filed Under Seal

EXHIBIT 53

Specification Sheet

Biopsy-Free cancer management with a simple blood test

GUARDANT360®

Guardant360® detects circulating tumor DNA (ctDNA) in blood specimens of advanced solid-tumor cancer patients. It identifies all actionable somatic genomic targets recommended by leading guidelines with a single blood draw. Guardant360's proprietary Digital Sequencing method nearly eliminates false positives.

- Complete sequencing of covered exons across 73 genes. Detects all four major classes of alterations including point mutations (SNVs), amplifications (CNAs), fusions, and indels relevant for patient care.
- Reports associated targeted treatment options including approved therapies and late stage clinical trials.
- Compared to other liquid biopsies, Guardant360 has more peer-reviewed publications, including clinical outcome studies.† Unlike tissue-based tests, Guardant360 allows for non-invasive comprehensive tumor genotyping in advanced cancer patients.

Indications for use

Guardant360 is recommended for the following indications

- Advanced cancer patients requiring more complete genotyping
- Tissue biopsy is not sufficient in quantity or quality, or tissue is unobtainable at diagnosis or progression
- Progression of cancer as documented by functional status, imaging, or tumor markers
- Archived tissue older than 6 months
- One or more lines of therapy or intervention since last biopsy

Other use cases

- Time to treatment is critical and decision needed in 2 weeks or less
- Patient prefers non-invasive genomic profiling or unwilling to submit to invasive biopsies

Not indicated for use

- Hematologic malignancy
- Early stage solid tumor cancer (Stage I-II)
- Stable disease
- If possible, avoid testing during a cycle of chemo or radiation therapy

Specifications

Sample specifications

Sample type and volume	Two 10 mL tubes of whole blood
Storage and Shipping conditions	Store up to overnight, and ship same or next day at room temperature

Guardant360 test specifications

Informed consent required	Yes
Requisition required	Yes
Methodology	Digital next-generation DNA sequencing
Test turnaround time	≤2 weeks from sample receipt to results
Genes tested	73 genes *(see gene list)*.
Alterations reported	Point mutations (SNVs), amplifications (CNAs), fusions, and indels

Alterations	Reportable Range	Allelic Fraction/ Copy Number	Analytical Sensitivity	PPV*
SNVs	≥0.04%	>0.25%	>99.9%	99.6%
		0.05-0.25%	63.8%	92.1%
Indels	≥0.02%	>0.25%	>99.9%	98.0%
		0.05-0.25%	67.8%	88.4%
Fusions	≥0.04%	≥0.3%	100%	100%
		<0.3%	83.0%	100%
CNAs	≥2.12 copies	2.3 copies**	95.0%	100%

Based on cell-free DNA input of ≥30 ng in patient samples. Analytical sensitivity cited above are for targeted, clinically important regions. Sensitivity outside these regions or in highly repetitive sequence contexts may vary.

*Over entire genomic reportable range of Guardant360 panel. **Equivalent to 5% tumor fraction and 8 *ERBB2* (HER2) gene copies in tumor. Copy number sensitivity may vary with other genes (2.28 - 2.49 copies).

Complete Sequencing of Covered Exons*

Point Mutations (SNVs) *(73 Genes)*							Indels *(23 Genes)*		Amplifications *(18 Genes)*		Fusions *(6 Genes)*
AKT1	*ALK*	*APC*	*AR*	*ARAF*	*ARID1A*	*ATM*	*ATM*	*APC*	*AR*	*BRAF*	*ALK*
BRAF	*BRCA1*	*BRCA2*	*CCND1*	*CCND2*	*CCNE1*	*CDH1*	*ARID1A*	*BRCA1*	*CCND1*	*CCND2*	*FGFR2*
CDK4	*CDK6*	*CDKN2A*	*CTNNB1*	*DDR2*	*EGFR*	*ERBB2* (HER2)	*BRCA2*	*CDH1*	*CCNE1*	*CDK4*	*FGFR3*
ESR1	*EZH2*	*FBXW7*	*FGFR1*	*FGFR2*	*FGFR3*	*GATA3*	*CDKN2A*	*EGFR*	*CDK6*	*EGFR*	*NTRK1*
GNA11	*GNAQ*	*GNAS*	*HNF1A*	*HRAS*	*IDH1*	*IDH2*	*ERBB2*	*GATA3*	*ERBB2*	*FGFR1*	*RET*
JAK2	*JAK3*	*KIT*	*KRAS*	*MAP2K1/MEK1*	*MAP2K2/MEK2*	*MAPK1/ERK2*	*KIT*	*MET*	*FGFR2*	*KIT*	*ROS1*
MAPK3/ERK1	*MET*	*MLH1*	*MPL*	*MTOR*	*MYC*	*NF1*	*MLH1*	*MTOR*	*KRAS*	*MET*	
NFE2L2	*NOTCH1*	*NPM1*	*NRAS*	*NTRK1*	*NTRK3*	*PDGFRA*	*NF1*	*PDGFRA*	*MYC*	*PDGFRA*	
PIK3CA	*PTEN*	*PTPN11*	*RAF1*	*RB1*	*RET*	*RHEB*	*PTEN*	*RB1*	*PIK3CA*	*RAF1*	
RHOA	*RIT1*	*ROS1*	*SMAD4*	*SMO*	*STK11*	*TERT***	*SMAD4*	*STK11*			
TP53	*TSC1*	*VHL*					*TP53*	*TSC1*			
							VHL				

† *Available upon request.* *Exons selected to maximize detection of known somatic mutations. List available upon request. ** *includes TERT promoter region*

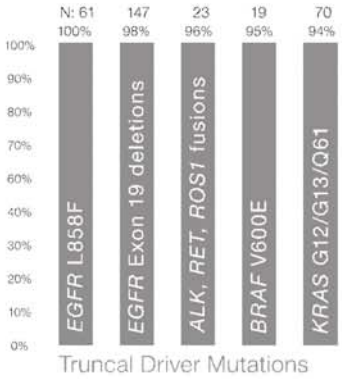
Guardant360 is clinically accurate[1-6]

>90% Concordance with Matched Tissue[5]

In samples from advanced NSCLC patients taken within 6 months.

Accurate, even at low mutant allele fraction (MAF)[6]

Over half of alterations detected in patients by Guardant360 are below 0.4% MAF. In 398 patients with matched tissue sequencing results, across common driver mutations, Guardant360's PPV was 94%-100%, and remained high (94.5%) even for low MAF alterations (<0.5% MAF).



Guardant360 has broad utility and proven clinical actionability

Highlights of NEXT-2 NSCLC prospective outcome study performed at Samsung Medical Center[7]

193 Patients tested with Guardant360

88% Response rate of NSCLC patients (RECIST)

60% Response rate of Gastric cancer patients (RECIST)

Highlights of NSCLC prospective outcome study performed at the University of Pennsylvania Perelman School of Medicine[5]

102 Patients tested with Guardant360

51% Patients for whom tissue sequencing could not be performed

8 of 10 Patients without tissue samples for whom Guardant360 detected an ***EGFR* T790M** mutation (ie. rescued patients)

31% Patients in whom Guardant360 detected alterations associated with FDA-Approved, on-label therapies

Clinical Detection Rate by Cancer Type[8]

Based on 5,000 clinical samples

CAP ACCREDITED

Clinical Laboratory Improvement Amendments

REFERENCES 1. Lanman RB, et al. PloS One. 2015;10(10):e0140712 | 2. Kim ST, et al. Oncotarget. 2015 Oct 5 | 3. Zill OA, et al. Cancer Discov. 2015 Jun 24. | 4. Ko AH, et al. Clin Cancer Res Off J Am Assoc Cancer Res. 2015 Aug 6 | 5. Thompson, et al. Clin Cancer Res, September 2016 d 10.1158/1078-0432. CCR-16-1231 | 6. Zill OA, et al. J Clin Oncol 34, 2016 (suppl; abstr LBA11501) | 7. Kim ST, et al. J Clin Oncol 33, 2015 (suppl; abstr e12540). | 8. Guardant Health Database 2016.

EXHIBIT 54

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

Case No. 3:17-cv-3590

- - - - - - - - - - - - - - - - - - - X

GUARDANT HEALTH, INC.,

a Delaware corporation,

Plaintiff,

v.

FOUNDATION MEDICINE, INC.,

a Delaware corporation,

Defendant.

- - - - - - - - - - - - - - - - - - - X

VOLUME I Pages 1-258

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

VIDEO DEPOSITION OF GARRETT MICHAEL FRAMPTON, Ph.D.

Friday, January 26, 2018, 9:42 a.m.

Choate Hall & Stewart LLP

Two International Place

Boston, Massachusetts 02110

--- Reporter: Kimberly A. Smith, CRR, CRC, RDR ---

Realtime Systems Administrator

O'Brien & Levine Court Reporting Solutions

Q. One thing. Was Foundation Medicine CLIA certified at the time of commercial launch?

A. I believe so.

Q. My understanding is that in order to get a CLIA certification for a test, the laboratory has to provide the certifying agency data that validates the endpoints that are going to be reported by that diagnostic test.

Is that generally your understanding too?

A. With respect to CLIA validation, the bar is extremely low. And the amount of work and results that are required to receive CLIA validation is quite minimal and, in my opinion, insufficient with regard to a complicated cancer genomic profiling test to consider it validated.

But that's a -- "validated" is a word that has no -- you know, no agreed-upon definition.

Q. But is it your understanding that at least

from -- Well, does CLIA refer to it as validation?

A. Sure, yes.

Q. So is it at least your understanding that from the --

A. I mean, that is an aspect of what they certify.

Q. Right. And so to have a clean question and answer, is it your understanding that in order to get CLIA certification for, let's say, FoundationOne, Foundation Medicine had to provide CLIA with sufficient data that CLIA felt that that assay was validated for each of the points that it would report upon?

A. I'm not sure, no. I -- Probably not.

Does that happen at Foundation Medicine, where because performance of an assay is disappointing, you're involved in helping to make improvements?

MR. FEIGELSON: Object to form.

THE WITNESS: Myself personally?

BY MR. PERLOFF:

Q. Well, I guess anybody at FMI, but including yourself.

A. So --

MR. FEIGELSON: Object to form.

THE WITNESS: Sorry. Can you -- can you just restate.

BY MR. PERLOFF:

Q. Sure. Have you ever been asked at FMI to help work on improvements to any of its assays because the current performance of the assay was below expectation or not as good as FMI wanted it to be?

A. FMI wants its tests to be as absolutely good as is humanly possible. And we're constantly working to improve our tests.

Q. Have you been worked -- Have you worked at all on helping to improve FoundationACT?

C E R T I F I C A T E

I, Kimberly A. Smith, a Certified Realtime Reporter, Certified Realtime Captioner, Registered Diplomate Reporter, Realtime Systems Administrator, and Notary Public in and for the Commonwealth of Massachusetts, do hereby certify that the foregoing deposition of GARRETT MICHAEL FRAMPTON, Ph.D., who was first duly sworn, taken at the place and on the date hereinbefore set forth, was stenographically reported by me and later reduced to print through computer-aided transcription, and the foregoing is a full and true record of the testimony given by the deponent.

I further certify that I am a disinterested person in the event or outcome of this cause of action.

THE FOREGOING CERTIFICATION OF THIS TRANSCRIPT DOES NOT APPLY TO ANY REPRODUCTION OF THE SAME BY ANY MEANS UNLESS UNDER THE DIRECT CONTROL AND/OR DIRECTION OF THE CERTIFYING COURT REPORTER.

Signed this 2nd day of February, 2018.

_____

KIMBERLY A. SMITH, CRR, CRC, RDR

My commission expires: November 20, 2020

EXHIBIT 55

Message

From: Annie Murphy [/O=FOUNDATION MEDICINE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=ANNE MURPHY282]
Sent: 1/8/2016 4:43:33 PM
To: Garrett Frampton [/O=FOUNDATION MEDICINE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Garrett Frampton788]; Travis Clark [/O=FOUNDATION MEDICINE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Travis Clark7d1]; Mark Kennedy [/O=FOUNDATION MEDICINE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Mark Kennedyb23]; Ramya Maddilate [/O=FOUNDATION MEDICINE/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=Ramya Maddilatea0a]
Subject: Re: [Update] FoundationACT market requirements
Attachments: FACT v. Guardant 1-pager.docx

[Removed Matt, Geoff and Elaine]

Hi all,

Following up with this group regarding points 2 and 3 below. For launch, I would like to have a 1-pager which compares the attributes of our assay vs. Guardant360. The piece will incorporate the information available to us at launch and, therefore, will not be a true head to head. It is my expectation that we will conduct a true head to head post-launch. We should construct the 1-pager in a way that highlights our points of superiority in an objective way that is difficult for Guardant to combat and sets up the true H2H down the road. You may be thinking that it makes more sense to wait on a FACT v. G360 1-pager until we have true head to head data, but we expect Guardant to come directly at us in February and need to be prepared to pre-empt.

I propose we meet early next week to discuss the attached strawman with the goal of finalizing the piece for internal circulation by next Friday. Recognizing that everyone is busy, I would like to do this in the most efficient way possible. Travis/Mark, if you would like to flip a coin and decide who attends, that is fine. If you prefer that Garrett, Ramya and I take the first crack and send to you for edits, that's fine too.

Thanks in advance,
Annie

From: Garrett Frampton
Date: Wednesday, December 16, 2015 at 2:24 PM
To: Anne Murphy, Travis Clark, Mark Kennedy, Ramya Maddilate
Cc: Matt Franklin, Geoff Otto, Elaine Labrecque
Subject: RE: [Update] FoundationACT market requirements

For me a few other take away items were;

1) <!--[if !supportLists]--><!--[endif]-->We should market the excellence and experience of Foundation Medicine as an organization as a major differentiator of our ctDNA test.
2) <!--[if !supportLists]--><!--[endif]-->We should put together a technical document comparing Guardant's validation study to the study that we perform.
3) <!--[if !supportLists]--><!--[endif]-->We should strongly consider and plan for a head-to-head comparison of Guardant360 versus FoundationACT.

-Garrett

From: Annie Murphy
Sent: Wednesday, December 16, 2015 2:05 PM
To: Travis Clark; Mark Kennedy; Garrett Frampton; Ramya Maddilate

Cc: Matt Franklin; Geoff Otto; Elaine Labrecque
Subject: [Update] FoundationACT market requirements

Hi team,

Thanks for meeting this morning to identify our "competitive hooks" against Guardant (slides attached). Our first task was to confirm the product criteria required for the clinical market. We determined as a team that the current product is the right product for the clinical market. While customers may claim they would be satisfied with a lower spec than ours and are happy with Guardant, a lower quality assay, it is in the best interest of patients to maintain our high standards for FoundationACT. As we gain experience in the market and expand our data set of cases, [redacted] but we are not comfortable making such a decision at this point in time.

[redacted] The team determined that this goal can be achieved in ways. [redacted] No doubt, this will be the topic of further discussion, we can move forward toward February 15th knowing that the requirements for the clinical product will remain unchanged.

If I've mischaracterized anything from our meeting, please let the team know and please reach out with any additional questions.

Thanks,
Annie
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EXHIBIT 56

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"Our validation studies" video with Dr. Lanman

Video available at http://guardanthealth.com/guardant360/ (last visited December 22, 2017) and https://vimeo.com/149365747 (last visited December 22, 2017):

0:01 We're very excited that our validation studies for the Guardant360 test have now come out in the scientific journal PLOS One.

0:09 The fundamental finding in this paper is a comparison of the simple non-invasive blood test doing next-gen sequencing on 165 samples from patients with advanced solid tumor cancers of a wide variety compared to tissue; tissue-based next-gen sequencing.

0:26 Samples were collected at UC San Francisco, MD Anderson Cancer Center, John Wayne Cancer Institute, Samsung Medical Center in Seoul, Korea, and from two large community-based health care systems, one in Georgia and one in Washington State.

0:41 So this multi-center study found that, number one, the Guardant360 test has exquisite sensitivity. We can detect small bits of circulating tumor DNA that have been shed by your tumor into your blood down to a single molecule or two in a 10 ML tube of blood. This is equivalent to a 0.1% or 1 in 1,000 parts mutant allele fraction.

1:04 The method it uses digital sequencing, where first we label the mutated DNA that we isolate from the blood sample. We label it with seven nucleotide tags; heptameric oligonucleotide descriptors. It's like barcoding the DNA. So imagine circulating cell-free DNA, about 167 bases long, double stranded. Each strand, each complementary strand, labeled separately. All of that gets sequenced.

1:32 Post sequencing, if one of those two strands has picked up a false positive and the two strands don't match any more, because of their labels, we know which strand goes with which strand, we can use algorithms to clean up the false positives.

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1:45 The results is the best specificity of any next-gen sequencing or NGS method—not just blood-based NGS—but even tissue-based NGS. It's greater than 99.9999% specificity.

1:59 Now, the sensitivity is imperfect. It's high, but it's imperfect. This is because all tumors don't release their DNA into blood. So although we can detect a single molecule or two of mutated DNA in a 10 ML tube of blood, some of these tumors, even the advanced ones, may not release.

2:17 So, blood versus tissue? 85% sensitivity for Guardant360. The other fascinating finding was, when we looked at how did tissue next-gen sequencing perform versus the blood test, the tissue test missed 20% of the mutations that we found with the blood.

2:32 Now, why is that? That's because needle biopsies of deep cancers are limited by tumor heterogeneity. These tumors are multi-clonal. The needle biopsy can't possibly capture all the clones. Even if I surgically remove the lesion, there may be multiple lesions in metastatic cancers, and as we know now, these different clones in different metastases have different genomic signatures.

2:57 The blood test may act as a summary for all parts of a tumor and all metastases of a tumor. Which test would you use first? At progression, I would use the non-invasive test first. You're going to get a result in two weeks. If nothing is detected, by all means do the tissue biopsy.

3:14 On the first 1,000 Guardant360 tests run in actual clinical practice, the test almost never fails. There was a 99.8% pass rate. This contrasts with a 20-25% failure rate with tissue-based sequencing because you get a note back, there wasn't enough tissue to sequence, there weren't enough tumor cells on the slides, please reschedule a repeat biopsy.

3:38 Finally, when we compared the two methods, blood-based next generation sequencing to tissue-based sequencing for the genes in the Guardant360 panel, both tests had equivalent diagnostic accuracy, 99.399% plus diagnostic accuracy.

3:55 So, both tests highly accurate. Both tests with near perfect specificity. Both with high sensitivity, but imperfect. But one, only one of the two tests non-invasive. That's the difference between tissue-based sequencing and plasma-based digital sequencing with Guardant360.

4:14 To find all of our validation studies, please visit GuardantHealth.com forward-slash ourscience.

EXHIBIT 57

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TO THE DECLARATION OF AMANDA M. BARTLETT

To be Filed Under Seal

EXHIBIT 58

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To be Filed Under Seal